incorporation into the liver, plasma and abdominal adipose tissue lipids was studied over a 30 min—48 h period. Lipogenic enzyme activities were also measured in liver extracts from 5 to 11 week old chickens of either line. Furthermore, the abdominal fat of LL or FL animals was enriched *in vivo* with dietary elaidic acid (a structurally labeled fatty acid) in order to determine its half-life in each case, following the cessation of label intake.

The studies with [^{14}C]acetate showed a higher rate of triglyceride secretion from the liver of fat animals than that of the lean ones. Moreover, a significant difference was found between the two lines as concerns the liver Δ-9 desaturase activity, which was 45% higher in FL than in LL. In addition, the labeling technique showed very similar half-lives of 29 and 32 days for elaidic acid removal from the abdominal adipose tissue triglycerides of LL and FL chickens, respectively (Lemarchal *et al.*, 1988; *Comp. Biochem. Physiol.* 89B, 227-231).

In conclusion, our results strongly suggest that the difference in adiposity between the two types of animals is unlikely to be due to a higher lipolytic activity in LL chickens. The major metabolic difference seems to be located in the liver, and to involve the VLDL processing and secretory mechanism which, in turn, could be influenced in some way by the Δ-9 desaturating activity.

Characterization of brown adipose tissue during fetal and perinatal life in cattle and sheep. L. Casteilla [1], D. Ricquier [2], G. Ailhaud [3] and J. Robelin [1] *([1] Laboratoire de la Production de la Viande, INRA, Theix, 69122 Ceyrat, [2] Centre de recherches sur la nutrition du CNRS, 9, rue Jules-Hetzel, 92190 Meudon-Bellevue, and [3] Centre de Biochimie, Parc Valrose, 06000 Nice, France)*

The brown adipose tissue (BAT) is involved in non-shivering thermogenesis and in body weight regulation. The function of this tissue is associated with the presence of a mitochondrial protein, specific to BAT, the uncoupling protein or UCP. We studied the development of BAT during fetal and perinatal life of cattle and sheep. The breeds of cattle and sheep were Friesians and IF x RO x Li crossbreeds, respectively.

We biochemically characterized UCP in most of the newborn adipose tissues (bovine or ovine) except the subcutaneous one. According to these results, BAT would represent about 3 or 4% of newborn body weight. To pursue this topic, we developed a molecular approach and isolated genomic probes for cattle and sheep UCP. We also cloned a cDNA for bovine UCP. These probes were used together with other probes coding for mitochondrial proteins (cytochrome III and IV, ADP/ATP translocator) to study the development of BAT during ontogenesis in cattle and sheep by Northern blotting analysis. We obtained evidence for a gradual development of BAT during fetal life and for the sudden appearance of UCP in the last third of gestation. After birth, UCP mRNA disappeared very quickly, while the apparent number of adipocytes did not vary. BAT seemed therefore to turn into white adipose tissue.

Our results emphasize the importance of BAT for cold adaptation of newborn ruminants and indicate that BAT could be involved in the development of white adipose tissue in particular fat pads.

***In vivo* estimation of fatness to improve bull selection in performance testing station.** G. Renand [1] and J. Robelin [2] avec la collaboration technique de C. Barboiron [3], P. Gillard [1] and B. Perreau [3] *([1] Station de Génétique Quantitative et Appliquée, INRA, Jouy-en-Josas, [2] Laboratoire de la Production de Viande, INRA, Theix, 63122 Ceyrat, and [3] Domaine de Gall, INRA, Avord, France)*

In performance testing stations, the main selection goal is muscle growth, which is indirectly selected *via* a synthetic index combining growth rate and feed efficiency. The need for an estimation of body composition led us to develop a simple and inexpensive method and to predict its effectiveness in increasing genetic improvement of muscle growth.